

DECLARATION OF PERFORMANCE
DoP No. 1343-CPR-M 561-8 / 11.14-EN

1. Unique identification code of the product-type: **Toge concrete screw TSM high performance 5 and 6**
2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):

Annex A 3

Batch number: see packaging of the product.

3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:

generic type	concrete screw
for use in	Cracked and non-cracked concrete C 20/25-C 50/60 (EN 206), only for multiple use of non-structural applications covered sizes: 5,6
option / category	Part 6
loading	static or quasi-static
material	<u>zinc-plated steel, steel with zinc flake coating :</u> dry internal conditions only <u>stainless steel</u> internal and external use without particular aggressive conditions <u>high corrosion resistant steel</u> internal and external use with particular aggressive conditions covered sizes: 6

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

Toge Dübel GmbH & Co. KG, Illesheimer Strasse 10, 90431 Nuernberg

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2): --
6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V: **System 2+**
7. In case of the declaration of performance concerning a construction product covered by a harmonised standard: --
8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:

Deutsches Institut für Bautechnik, Berlin

has issued the following:

ETA-16/0123

on the basis of

ETAG 001-1, ETAG 001-6

The notified body **1343-CPR** performed

ii) factory production control.

iii) testing of samples taken at the factory in accordance with a prescribed test plan.

and has issued the following: certificate of conformity 1343-CPR-M 561-8 /11.14.

9. Declared performance:

Essential Characteristics	Design Method	Performance	Harmonized Technical Specification
Characteristic resistance for tension load	ETAG 001 Annex C	Annex C 1	ETAG 001-01
Characteristic resistance for shear load	ETAG 001 Annex C	Annex C 1	
Minimum spacing and minimum edge distance	ETAG 001 Annex C	Annex B 2	
Characteristic resistance in precast prestressed hollow core slabs	ETAG 001 annex C	Annex C 2	
Characteristic resistance under fire exposure	TR 020	Annex C 2	

Where pursuant to Article 37 or 38 in the Specific Technical Documentation has been used, the requirements with which the product complies: --

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:



p.p. Waldemar Gunkel

Waldemar Gunkel
Dipl.-Wirtsch.-Ing. (FH), B.Eng.
Anwendungstechnik und Technische Dokumente

Nuernberg, 2016-02-10























Andreas Gerhard

Andreas Gerhard
CEO

Nuernberg, 2016-02-10

Table A 1: materials and variants

part	name	Material		
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Concrete screw	TSM high performance	Steel EN 10263-4 galvanized acc. to EN ISO 4042 or zinc flake coating acc. to EN ISO 10683 ($\geq 5\mu\text{m}$)	
TSM high performance A4		1.4401, 1.4404, 1.4571, 1.4578		
TSM high performance HCR		1.4529		
				TSM high performance
				TSM high performance A4
				TSM high performance HCR
nominal characteristic steel yield strength		f_{yk}	[N/mm ²]	560
nominal characteristic steel ultimate strength		f_{uk}	[N/mm ²]	700

- | | | | |
|---|---|-----|--|
|  |  | 1) | Anchor version with connection thread and hexagon socket
e.g. TSM 8x105 M10 SW5 |
|  |  | 2) | Anchor version with connection thread and hexagon drive
e.g. TSM 8x105 M10 SW7 |
|  |  | 3) | Anchor version with washer, hexagon head and TORX
e.g. TSM 8x80 SW13 VZ 40 |
|  |  | 4) | Anchor version with washer and hexagon head
e.g. TSM 8x80 SW13 |
|  |  | 5) | Anchor version with washer, hexagon head and
e.g. TSM 8x80 SW13 OS |
|  |  | 6) | Anchor version with countersunk head
e.g. TSM 8x80 C VZ 40 |
|  |  | 7) | Anchor version with pan head
e.g. TSM 8x80 P VZ 40 |
|  |  | 8) | Anchor version with large pan head
e.g. TSM 8x80 LP VZ 40 |
|  |  | 9) | Anchor version with countersunk head and connection thread
e.g. TSM 6x55 AG M8 |
|  |  | 10) | Anchor version with hexagon drive and connection thread
e.g. TSM 6x55 M8 SW10 |
|  |  | 11) | Anchor version with internal thread and hexagon drive
e.g. TSM 6x55 IM M8/10 |

TOGE concrete screw TSM high performance

Product description

Material and screw types

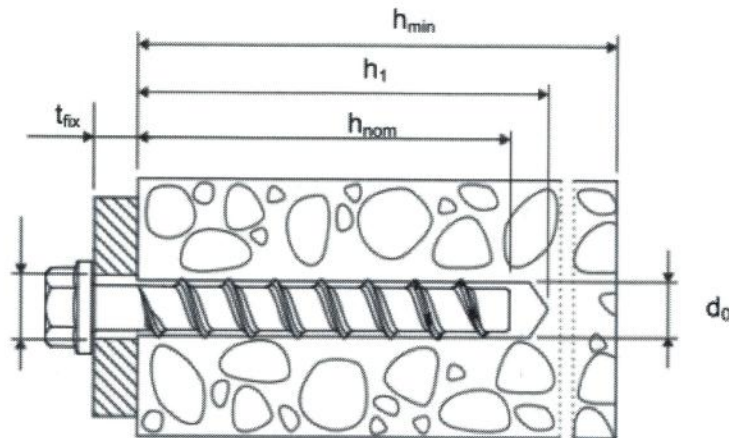
Annex A 3

Table B 1: Installation parameters

Anchor size			TSM 5	TSM 6	
Nominal embedment depth			$h_{nom} = 35 \text{ mm}$	$h_{nom} = 35 \text{ mm}$	$h_{nom} = 55 \text{ mm}$
nominal drill bit diameter	d_0	[mm]	5	6	
cutting diameter of drill bit	$d_{cut} \leq$	[mm]	5,40	6,40	
depth of drill hole	$h_1 \geq$	[mm]	40	40	60
Nominal embedment depth	$h_{nom} \geq$	[mm]	35	35	55
diameter of clearing hole in the fixture	$d_f \geq$	[mm]	7	8	
Installation torque	T_{inst}	Nm	8	10	
Maximum nominal torque for installation with an impact screwdriver		Nm	120	150	

Table B 2: Minimum thickness of member, minimum edge distance and minimum spacing

Anchor size			TSM 5	TSM 6	
Nominal embedment depth			$h_{nom} = 35 \text{ mm}$	$h_{nom} = 35 \text{ mm}$	$h_{nom} = 55 \text{ mm}$
minimum thickness of member	h_{min}	[mm]	80	80	100
minimum edge distance	c_{min}	[mm]	35	35	40
minimum spacing	s_{min}	[mm]	35	35	40



TOGE concrete screw TSM high performance

Intended use

Installation parameters

Annex B 2

Table C 1: Characteristic values for design method A according to ETAG 001, Annex C or CEN TS 1992-4

Anchorsize		TSM 5		TSM 6	
Nominal embedment depth		$h_{nom} = 35 \text{ mm}$		$h_{nom} = 35 \text{ mm}$	$h_{nom} = 55 \text{ mm}$
steel failure for tension- and sear load					
characteristic load	$N_{Rk,s}$	[kN]	8,7	13,7	
	$V_{Rk,s}$	[kN]	4,4	7,0	
	$M_{Rk,s}^0$	[Nm]	5,3	10,0	
Pull-out failure					
characteristic tension load in concrete C20/25	$N_{Rk,p}$	[kN]	1,5	1,5	7,5
increasing factor concrete for $N_{Rk,p}$	Ψ_C	C30/37	1,22		
		C40/50	1,41		
		C50/60	1,55		
concrete cone and splitting failure					
effective anchorage depth	h_{ef}	[mm]	27	27	44
factor for	cracked	$k_{cr}^{1)}$	[-]	7,2	
	non cracked	$k_{ucr}^{1)}$	[-]	10,1	
concrete cone failure	spacing	$s_{cr,N}$	[mm]	$3 \times h_{ef}$	
	edge distance	$c_{cr,N}$	[mm]	$1,5 \times h_{ef}$	
splitting failure	spacing	$s_{cr,Sp}$	120	120	160
	edge distance	$c_{cr,Sp}$	60	60	80
installation safety factor	$\gamma_2^{1)} = \gamma_{inst}^{2)}$	[-]	$1,2^{2)}$	$1,2^{2)}$	$1,0^{2)}$
concrete pry out failure (pry-out)					
k-Factor	$k^{1)} = k_3^{2)}$	[-]	1,0		
concrete edge failure					
effective length of anchor	$l_f = h_{ef}$	[mm]	27	27	44
outside diameter of anchor	d_{nom}	[-]	5	6	

¹⁾ Parameter relevant only for design according to CEN/TS 1992-4:2009

²⁾ Parameter relevant only for design according ETAG 001 Annex C

TOGE concrete screw TSM high performance

Performances

Characteristic values for design method A

Annex C 1

**Table C2: Characteristic values of resistance in precast prestressed hollow core slabs
C 30/37 to C 50/60**

Anchorsize			TSM 6		
Bottom flange thickness	d_b	[mm]	≥ 25	≥ 30	≥ 35
Characteristic resistance	F_{Rk}^0	[kN]	1	2	3
Installation safety factor	$\gamma_2^{1)} = \gamma_{inst}^{2)}$	[mm]	1,2		

¹⁾ Parameter relevant only for design according to CEN/TS 1992-4:2009

²⁾ Parameter relevant only for design according ETAG 001 Annex C

Table C 3: Characteristic values of resistance to fire exposure ¹⁾

Anchorsize				TSM 6		
Nominal embedment depth				$h_{nom} = 35 \text{ mm}$	$h_{nom} = 55 \text{ mm}$	
				B, BC, BS, BSH	B, BC	BS, BSH
fire resistance class						
R 30	characteristic resistance	$F_{Rk,R30}$	[kN]	0,38	0,9	1,2
R 60	characteristic resistance	$F_{Rk,R60}$	[kN]	0,38	0,8	1,2
R 90	characteristic resistance	$F_{Rk,R90}$	[kN]	0,38	0,6	1,2
R 120	characteristic resistance	$F_{Rk,R120}$	[kN]	0,30	0,4	0,8
R 30 bis R 120	spacing	$s_{cr,f}$	[mm]	108	176	
	edge distance	$c_{cr,f}$		54	88	

¹⁾ Not for using in prestressed hollow core slabs

TOGE concrete screw TSM high performance	Annex C 2
Performances Characteristic values for anchorages in precast prestressed hollow core slabs and characteristic values of resistance to fire exposure	